Section 7 Consultation and the Indiana Bat

Ecological Services Field Office

Reynoldsburg, Ohio

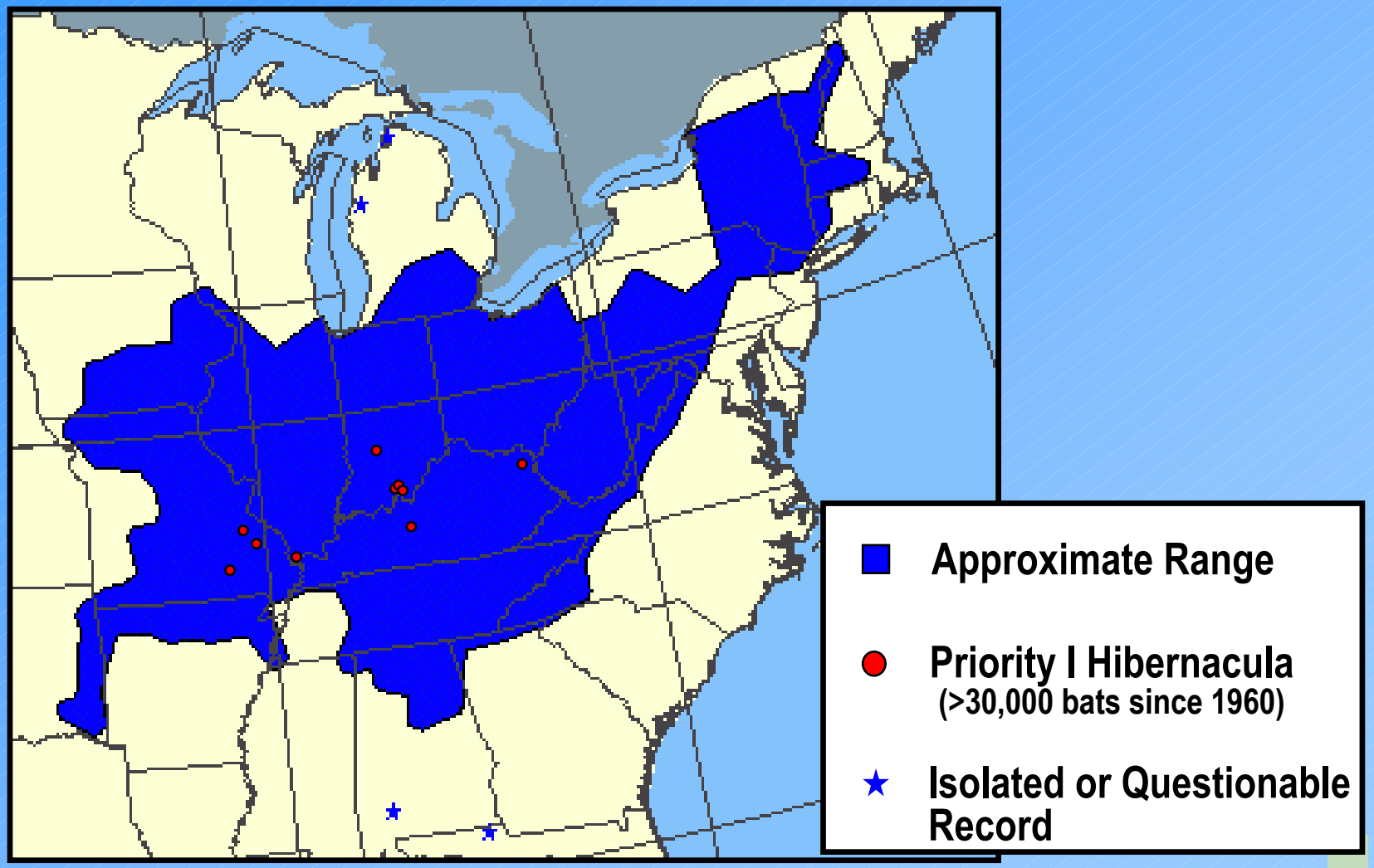
Overview

- Indiana bat Status and Life History
- Consultation (Focus on summer/informal)
  - When to Consult
  - Assuming Presence
  - Conducting Surveys
  - Projects within 5 miles of known records
- Important points to remember
- Examples

Indiana bat (*Myotis sodalis*)

- Listed as endangered in 1967
- Numbers once rivaled that of passenger pigeon
- Potentially present in every county in Ohio during the summer

Indiana bat Distribution



Indiana bat range (based on data compiled by Bat Conservation International) boundaries were accessed via The National Atlas of the United States (http://nationalatlas.gov). Map prepared by Andrew King, Bloomington, Indiana Field Office, U.S. Fish and Wildlife Service.

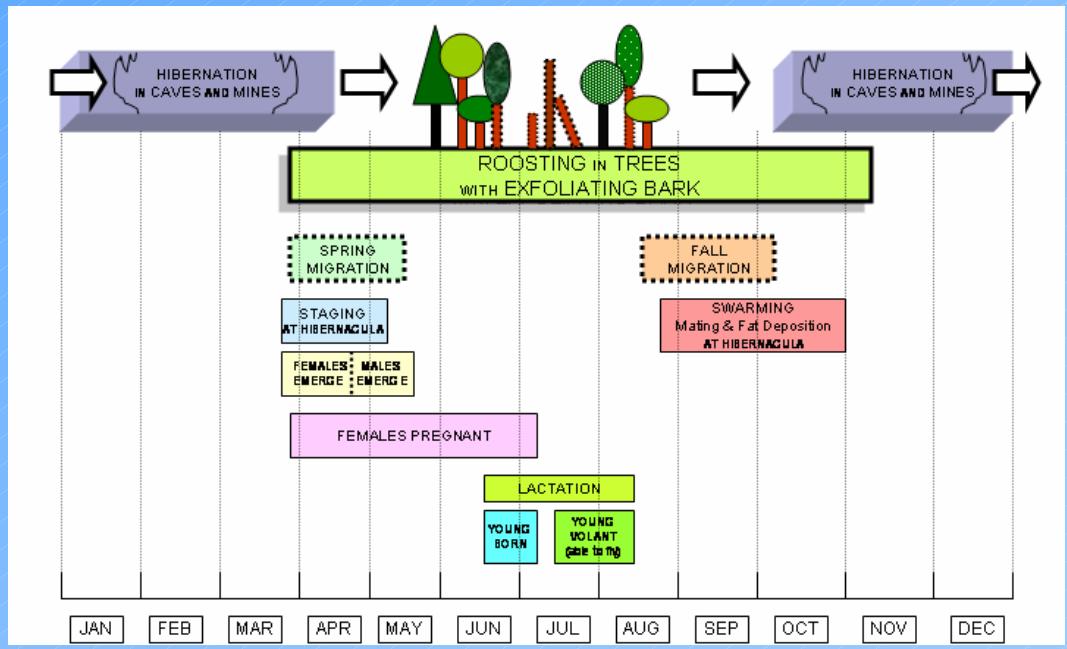
Why are Indiana bats endangered?

- Disturbance at Caves
  - Minimum of 300,000 Indiana bats killed in Bat Cave, Edmonson County, Kentucky in 1937
  - Human Disturbance
- Direct disturbance at summer habitat
- Removal/Degradation of habitat
- Chemical contamination
- Current threats not well understood

Life History

- Winter- Hibernation
- Spring- Mating and Migration
- Summer-
  - Females: Giving birth and caring for young
  - Males: Hanging out and eating
- Fall- Migration, Mating, building fat reserves for hibernation

4 seasons- 4 life stages



Winter

- Hibernate in caves and abandoned mines
- October through April
- 300-500 per ft^2
- Specific microclimate
  - Humidity >74%
  - Temperature < 10° C (3°C – 8°C is optimal)
- Torpor, will occasionally move
- Susceptible to disturbance that can interrupt hibernation and increase metabolic rates

Hibernacula

- Two verified in Ohio.
  - Preble County, Limestone Mine (9,436 bats)
  - Lawrence County, Wayne N.F. (333 bats)
- Other potential hibernacula (fall swarming records)
  - Summit County
  - Wayne National Forest Near Athens
  - Mohican State Forest

Hibernacula

- Priority 1 >30,000 Indiana bats
- Priority 2 500 – 30,000
- Priority 3 <500
- Approximately 50% hibernate in 9 Priority I Hibernacula (2003 Census)

Spring

- Staging
  - Foraging
  - Limited mating
- Most bats depart by late April
- Migrate to summer roosts
  - Stressful, fat reserves low
  - Adult mortality may be highest at this time (Thomson 1982)

Summer

- Roost under exfoliating bark of trees in riparian, bottomland, and upland forests.
- Males roost individually or in small groups
  - May remain near their hibernaculum
  - May disperse throughout the range
- Females
  - Form larger groups called maternity colonies
  - Roosting demands are more specific

Anatomy of a Roost Tree

- exfoliating bark is the main characteristic
- Dead, dying, damaged
- Also live (shagbark)
- Can be large
- Or small <6.5 cm dbh
- Ephemeral- duration of suitability varies

Maternity Roost

- One or more **primary** roost tree(s)
  - Generally > 22cm dbh
  - Typically receive solar exposure
    - Edge of forest
    - Super-canopy
- Other **alternate** roost trees of varying sizes and microclimates
- 18 or more roost trees in a single season

Foraging

- Within and on the edges of forest
  - open subcanopy creates better foraging habitat
- Along streams
- Floodplain forest
- Wetlands
- Impoundments

Traveling

- Areas that link roosting and foraging habitat
- Generally avoid large open areas
- Open-understory forest
- Wooded fence rows
- Open (closed-canopy) paths through wooded areas
  - Streams
  - Trails
  - Small roads

Fall

- Migrate back to hibernacula
- Engage in “Swarming”
  - Fly in and out of hibernacula from dusk until dawn
  - Most use trees as day roosts
  - Build up fat stores to get through winter
  - Mate- fertilization is delayed until spring

CONSULTATION

- Required when an action May Affect the Indiana bat
- A project may affect the Indiana bat when suitable habitat for the species exists in the action area.
    - Roosting
    - Foraging
    - Travel
    - Hibernaculum

Why so difficult?

- Potentially present in every county in Ohio
- Small, nocturnal, similar in appearance to other Ohio bat species
- Must hold in hand for reliable, positive I.D.
- Many project sites have suitable habitat
- Biology and limiting factors are not fully understood
  - Congressional Mandate to err on the side of the species

Congressional Mandate

- We are directed by Congress to provide benefit-of-the-doubt to listed species
  - i.e., we must err on the side of the species
  - H.R. Conf. Rep. No. 697, 96th Cong. 2d Sess. 12, 1979.
  - All Federal Agencies must use the best available scientific and commercial data
  - In case of Indiana bat, little or no data exists for many sites

What if suitable habitat is present?

- **1st** Contact the Service to see if the project is within 5 miles of a known Indiana bat capture
  - Greater likelihood of Indiana bat presence
  - Service will likely ask for a variety of information regarding habitat and avoidance and minimization measures (discuss later).
- If the action area is not within 5 miles…

Choose from one of the following two options

- Conduct surveys to determine presence or probable absence

  Or

- Assume that Indiana bats are present in the action area

Mist-net Surveys

- Must be conducted by person with federal permit
- Conducted between May 15 and August 15
- Guidelines included in your handouts
- Determines Presence or Probable Absence
- Does not absolutely confirm absence

What if the results are negative?

- Indiana bats either not present or present in low densities
- Clearing the site during the winter will normally avoid adverse effects
  - September 15 through April 15

Can the project area be cleared during the summer?

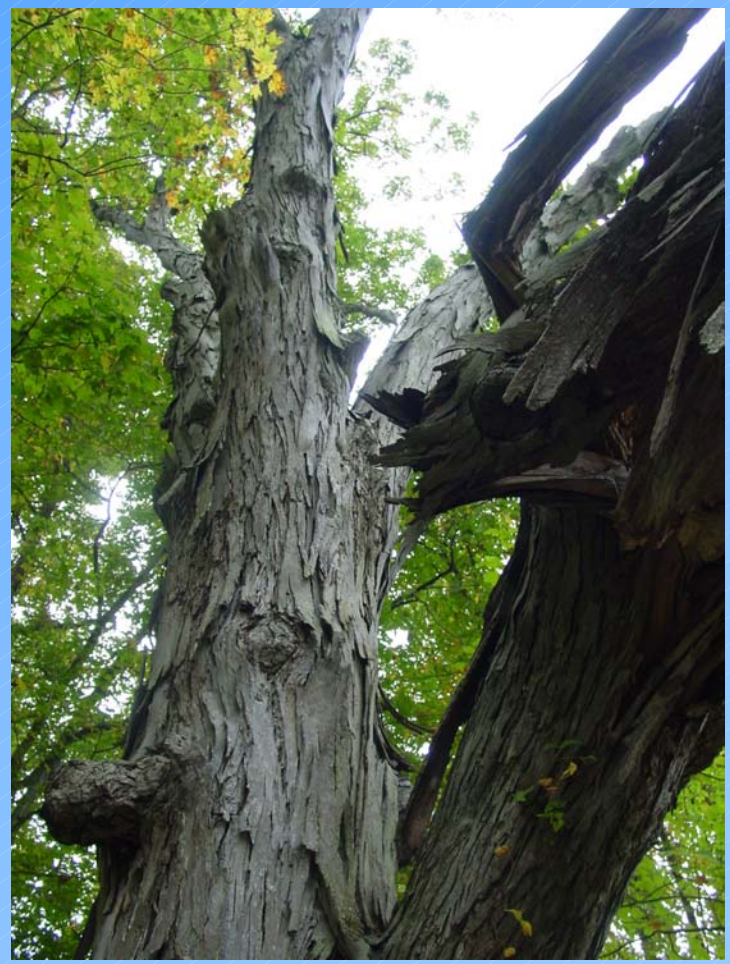
- April 15 – September 15
- We always discourage this
- May be O.K. (i.e., not result in adverse effects)
- Close evaluation of survey results
  - Size of area
  - Quality of habitat
  - Number and diversity of other bat species
- Additional data
  - Emergence survey, bat detector results
- No guarantee of summer cutting

What if an Indiana bat is captured?

- Consult with the Service to avoid and minimize impacts to the bat and its habitat.
- If adverse effects cannot be avoided, initiate formal consultation

Emergence Surveys

- Small areas of marginal habitat
- Few individual potential roost trees
- Monitor individual trees for 2 nights
- Negative= cut down tree the day following survey
- Positive= mist net survey or assume presence



Assuming Presence

- Work to develop avoidance and minimization measures to avoid adverse effects.
  - Clearing suitable habitat between September 15 and April 15,
    - And
  - Preserving habitat in perpetuity
- Can’t the site just be cut during the winter?

Winter cutting

- Avoids direct impacts
  - Killing or harming a bat roosting in a tree that is cut down
- May result in indirect effects
  - Is the area important habitat for Indiana bats (e.g., maternity colony)?
  - What are the results of removal of important habitat?

Evaluating impacts of winter cutting

- What will happen if bats return in the Spring and the project area is disturbed?
- Will adverse effects occur?
  - Roosting habitat?
  - Foraging habitat?
  - Traveling habitat?
- Evaluate the following
  - Area of habitat to be impacted (in relation to surrounding habitat)
  - Quality of habitat to be impacted
  - Amount and quality of Indiana bat habitat in surrounding area that is protected into perpetuity

What if winter cutting will cause adverse effects?

- Develop avoidance and minimization measures that will avoid adverse effects
  - primarily habitat preservation
- If adverse effects cannot be avoided
  - Initiate formal consultation
    - or
  - Conduct surveys to demonstrate presence or probable absence

Projects within 5 miles of a known record

- Greater likelihood that Indiana bats are present in the action area
- Greater likelihood that the area is important habitat
- “9 points of light”
  - Specific habitat description/survey
  - Avoidance/minimization measures
  - Effects determination

Summary

- Suitable habitat = May Effect
- Cutting during winter not always the only measure necessary to protect the bat
- Negative surveys ≠ summer cutting
- Service errs on side of species
- Early, Early, Early Consultation

Time-frames

- Summer mist-netting season
  - May 15 through August 15
- Winter clearing season
  - September 15 through April 15 (for summer habitat)
  - November 15 through March 31 (5 miles from hibernacula)